



Safety Data Sheet

1. Identification of the substance / preparation and the Company

1.1 Identification of the substance or preparation

Product name **RETIC C 101 T**
Chemical name and synonym **2-Butanone Peroxide - MEKP - MEK peroxide**

1.2 Use of the substance / preparation

Intended use **Industrial use. Polymerization initiator.**

1.3 Company identification

Name **Oxido s.r.l.**
Full address **Località Paduni - Zona Industriale di Anagni**
District and Country **03012 Anagni (FR)**
Italy
Tel. **+390775767180**
Fax **+390775769409**

e-mail address of the competent person responsible for the Safety Data Sheet **info@oxidosrl.com - g.malcangio@oxidosrl.com**

1.4 Emergency telephone

For urgent inquiries refer to **+390775767180**

2. Hazards Identification.

2.1 Substance/Preparation Classification.

This product is dangerous under 67/548/EEC and 1999/45/EC directives and subsequent amendments. Therefore, this product requires a safety data sheet according to the Regulation (EC) 1907/2006 and subsequent amendments. Further information on health and/or environmental hazards can be found in sections 11 and 12 of this sheet.

Danger Symbols: O-C

R phrases: 7-22-34

2.2 Danger Identification.

HARMFUL IF SWALLOWED.
CAUSES BURNS.

3. Composition / Information on ingredients.

Contains:

Name.	Concentration % (C).	Classification.
HYDROGEN PEROXIDE SOLUTION	0<= C <5	R 5
<i>C.A.S. number</i> 7722-84-1		O R 8
<i>EC number</i> 231-765-0		C R 35
<i>INDEX number</i> 008-003-00-9		Xn R 20/22
		Xi R 37
		Note B
4-HYDROXY-4-METHYLPENTAN-2-ONE	5<= C <10	Xi R 36
<i>C.A.S. number</i> 123-42-2		
<i>EC number</i> 204-626-7		
<i>INDEX number</i> 603-016-00-1		



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BUTANONE		0<= C <5	R 66
<i>C.A.S. number</i>	78-93-3		R 67
<i>EC number</i>	201-159-0		F R 11
<i>INDEX number</i>	606-002-00-3		Xi R 36
METHYLETHYLKETONE PEROXIDE		30<= C <40	E R 2
<i>C.A.S. number</i>	1338-23-4		O R 7
<i>EC number</i>	215-661-2		C R 34
			Xn R 22
1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE		40<= C <50	
<i>C.A.S. number</i>	6846-50-0		
<i>EC number</i>	229-934-9		

The complete text of -R- phrases is specified in section 16.

Note:

It is indicated, in this section, the classification of the mentioned substance(s) including the letters corresponding to the hazard symbols and to the risk phrases (R) assigned in relation to their risks for security, health and environment. The meaning of any risk code is indicated in the section 16 (more relevant risk phrases used in the section 2 and 3 of this safety data sheet).

4. First aid measures.

EYES: Wash immediately with plenty of water for at least 15 minutes and seek medical advice at once.

SKIN: Immediately take off all contaminated clothing and have a shower. Seek medical advice.

INGESTION: Have the patient drink water as much as possible and seek medical advice immediately. Do not induce vomiting before consulting a doctor.

INHALATION: Immediately seek medical advice. In the meantime, remove the patient to open air, far from the contaminated premises; if respiration stops or is difficult, give an artificial respiration adopting the proper measure for the helper.

5. Fire-fighting measures.

In the event of a fire, cool containers immediately to prevent hazard of explosions and the generation of gas hazardous to health and safety. Always wear full fireproof gear.

GENERAL INFORMATION

In the case of fire, use jets of water to cool the containers to prevent the risk of explosions (product decomposition and excess pressure) and the development of substances potentially hazardous for health. Always wear full fire prevention gear.

SUITABLE EXTINGUISHING MEDIA

Use extinction equipment containing carbon dioxide, foam and chemical powders. For product leaks and spills that do not catch fire, nebulised water can be used to dispel flammable fumes and protect the individuals taking part in stemming the leak.

EXTINGUISHING MEDIA WHICH SHALL NOT BE USED FOR SAFETY REASONS

Do not use water jets.

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products (carbon oxide, toxic pyrolysis products, etc).

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Hardhat with visor, fireproof clothing (fireproof jacket and trousers with straps around arms, legs and waist) work gloves (fireproof, cut proof and dielectric), self-respirator (self-protector).

6. Accidental release measures.

PERSONAL PRECAUTIONS

Eliminate sources of ignition (cigarettes, flames, sparks, etc.) from the air in which the leak occurred. If there are no contraindications, spray solid products with water to prevent the formation of dust. Use breathing equipment if fumes or powders are released into the air.

Block the leakage if there is no hazard. Do not handle damaged containers or leaked product before donning appropriate protective gear.

Send away individuals who are not suitably equipped. For information on risks for the environmental and health, respiratory tract protection, ventilation and personal protection equipment, refer to the other sections of this sheet.

ENVIRONMENTAL PRECAUTIONS

The product must not penetrate the sewers, surface water, ground water and neighbouring areas.

METHODS FOR CLEANING UP

For liquid products, suck into a suitable container (made of material not incompatible with the product) and soak up any leaked product with absorbent inert material (sand, vermiculite, diatomaceous earth, Kieselguhr, etc). Collect the majority of the remaining material and deposit in containers for disposal. For solid products, use spark proof mechanical tools to collect the leaked product and place in plastic containers. If there are no contraindications, use jets of water to eliminate product residues. Make sure the leakage site is well aired.

Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

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Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

7. Handling and storage.

Avoid the accumulation of electrostatic charges. Store the containers sealed and in a well ventilated place. Vapours may ignite with explosion, it is therefore necessary to avoid accumulation keeping the windows and doors open, ensuring crossventilation.

Without adequate ventilation, the vapours may accumulate at the bottom and ignite at a distance, if triggered off, with the risk of flashback.

Keep far away from sources of heat, sparks and bright flames. Do not smoke, use matches or lighters. Keep the containers earthed while decanting and wear antistatic boots.

Vigorous stirring and flow through the pipings and equipment may cause the formation and accumulation of electrostatic charges due to the low conductivity of the product. In order to avoid the risk of fire outbreak and explosion never use compressed air during movement.

Recommended storage temperature (to maintain quality and safety reasons): max +30 ° C.

8. Exposure control / personal protection.

8.1 Exposure limit values.

Name	Type	Country	TWA/8h mg/m3	ppm	STEL/15min mg/m3	ppm	
HYDROGEN PEROXIDE SOLUTION	TLV-ACGIH		1,4	1			
	OEL	IRL		1		2	
	WEL	UK		1		2	
4-HYDROXY-4-METHYLPENTAN-2-ONE	TLV-ACGIH		238	50			Skin
	OEL	IRL		50		75	Skin
	WEL	UK		50		75	Skin
BUTANONE	TLV-ACGIH		590	200	885	300	
	OEL	EU	600	200	900	300	
	OEL	IRL		200		300	
	WEL	UK		200		300	
METHYLETHYLKETONE PEROXIDE	TLV-ACGIH				0,15		

C = CEILING.

TLV of solvent mixture: 280 mg/m3.

8.2 Exposure controls.

As the use of adequate technical equipment must always take priority over personal protection equipment, make sure that the workplace is well aired through effective local aspiration or bad air vent. If such operations do not make it possible to keep the concentration of the product below the permitted workplace exposure thresholds a suitable respiratory tract protection must be used. See product label for hazard details during use. Ask your chemical substance suppliers for advice when choosing personal protection equipment. Personal protection equipment must comply with the rules in force indicated below.

HAND PROTECTION

Protect hands with category III (ref. Directive 89/686/EEC and standard EN 374) work gloves, such as those in PVA, butyl, fluoroelastomer or equivalent. The following should be considered when choosing work glove material: degradation, breakage times and permeation. Work glove resistance to preparations should be checked before use, as it can be unpredictable. Gloves' limit depends on the duration of exposure.

EYE PROTECTION

Wear protective airtight goggles (ref. standard EN 166).

SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (ref. Directive 89/686/CEE and standard EN 344). Wash body with soap and water after removing overalls.

RESPIRATORY PROTECTION

If the threshold value for one or more of the substances present in the preparation for daily exposure in the workplace or to a fraction established by the company's prevention and protection service is exceeded, wear a mask with an A or universal filter, the class (1, 2 or 3)



of which must be chosen according to the limit concentration of use (ref. standard EN 141).

The use of breathing protection equipment, such as masks with organic vapour and dust/mist cartridges, is necessary in the absence of technical measures limiting worker exposure. The protection provided by masks is in any case limited.

If the substance in question is odourless or its olfactory threshold is higher than the relative exposure limit and in the event of an emergency, or when exposure levels are unknown or the concentration of oxygen in the workplace is less than 17% volume, wear self-contained, open-circuit compressed air breathing apparatus (ref. standard EN 137) or fresh air hose breathing apparatus for use with full face mask, half mask or mouthpiece (ref. standard EN 138).

An emergency eye washing and shower system must be provided.

In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

9. Physical and chemical properties.

Colour	colourless
Odour	characteristic
Appearance	liquid
Solubility	insoluble in water
Viscosity	10 - 20 mPas 20 C°
Vapour density	Not available.
Evaporation Rate	Not available.
Reactive Properties	Not available.
Partition coefficient: n-octanol/water	Not available.
SADT (C°)	60
Active oxygen (%)	9,10
pH.	Not available.
Boiling point.	Not available.
Melting point.	< -10 °C.
Flash point.	> 80 °C.
Explosive properties.	Not available.
Vapour pressure.	Not available.
Molecular weight.	13,217,081
Specific gravity.	Not available.
VOC (Directive 1999/13/EC) :	12,00 %
VOC (volatile carbon) :	7,58 %

10. Stability and reactivity.

The product can decompose and/or violently react.

Above a certain temperature, called SADT (Self Acceleration Decomposition Temperature), the product may generate explosive peroxides, thus releasing substances which might be harmful to health.

HYDROGEN PEROXIDE: decomposes with the development of oxygen upon reaction with bases, acids, finely subdivided metals and reducing agents. Simultaneous contact with organic or flammable substances can cause combustion and also explosions. Compatible materials are: aluminium devoid of copper, stainless steel, polyethylene. PVC resists up to a concentration of 35%.

Diacetone alcohol decomposes to acetone and mesityl oxide when heated; in the same manner, it reacts with acids and bases and strong oxidizing agents.

METHYLETHYL KETONE: reacts with light metals such as, aluminium and strong oxidizing agents. It attacks different types of plastic materials.

SADT (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the temperature SADT indicated at point 9. Contact with incompatible substances can cause decomposition at the temperature SADT or below that.

11. Toxicological information.

Acute effects: ingestion of this product is harmful. Even small amounts of product may cause serious health problems (stomach pain, nausea, sickness, diarrhoea). This product may slightly irritate mucosae, the upper respiratory tract, eyes, and skin. Exposure symptoms may include: sting, cough, asthma, laryngitis, respiratory disorders, headache, nausea and sickness.

This product is corrosive and causes abrasions of skin surface, accompanied by rubefaction, warmth and sting. In the most serious cases, small vesicles appear, which cause strong sting and pain. Upon contact with eyes, it may cause serious harm, such as cornea opacity, iris lesions, irreversible eye coloration. Possible vapours are caustic for the respiratory system and may cause pulmonary edema, whose symptoms sometimes arise only after some hours. Exposure symptoms may include: sting, cough, asthma, laryngitis, respiratory disorders, headache, nausea and sickness. If swallowed, it may cause mouth, throat and oesophagus burns; sickness, diarrhoea, edema, larynx swelling and, consequently, asphyxia. Perforation of the gastro-intestinal tract is also possible.

Diacetone alcohol: its acute toxicity is manifested by eye irritation, nose and throat in man at 100 ppm (476 mg/kg) and by pulmonary disorders at 400 ppm. No chronic effects have been reported in man.

HYDROGEN PEROXIDE SOLUTION: oral LD50 (mg/kg) 4060 (RAT) ; dermal LD50 (mg/kg) 4060 (RAT) ; inhalation LC50 (rat) 2 mg/l/4h.
METHYLETHYL KETONE: oral LD50 (mg/kg) 2737 (RAT) ; dermal LD50 (mg/kg) 6480 (RABBIT) ; inhalation LC50 (rat) 23,5 mg/l/8h.
METHYLETHYLKETONEPEROXIDE (solution 35% in Dimethyl phthalate)

Acute toxicity

Oral LD50

Rat: 484 mg/Kg

Dermal LD50

Rat: 1017 mg/Kg

Inhalation LD50

Rat: 170 ppm/4h

Acute toxicity - Skin LD50 (lethal dose - rat) 1017 mg /kg

Irritancy - Eyes (rabbit) extremely irritating/corrosive

Irritancy - Skin (rabbit) corrosive

Genotoxicity in vitro (Ames test) negative

Sensitization n.d.

12. Ecological information.

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or sewers or contaminate soil or vegetation.

Hydrogen peroxide is harmful to aquatic organisms, but it is easily biodegradable and does not damage the aquatic environment.

METHYLETHYLKETONEPEROXIDE (solution 35% in Dimethyl phthalate)

Air Mobility - low volatile

water - partially soluble in water

soil - possible absorption

Persistence and degradability readily biodegradable

Little potential for bioaccumulation bioaccumulative - log = 2 Pow.

EC50 (48h) > 48 mg / l bacteria

LC50 (96h) > 44.2 mg / l Poecilia reticulata.

EC50 (48h): > 48 mg/l bacteria

LC50 (96h): > 44,2 mg/l poecilia reticulata

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE

EC50 (48h): > 1,46 mg/l daphnia magna (crustacea)

LC50 (96h): > 1,55 mg/l pimephales promelas (fish, fresh water)

13. Disposal consideration.

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

14. Transport information.

These goods must be transported by vehicles authorized to the carriage of dangerous goods according to the provisions set out in the current edition of the Code of International Carriage of Dangerous Goods by Road (ADR) and in all the applicable national regulations.

These goods must be packed in their original packagings or in packagings made of materials resistant to their content and not reacting dangerously with it. People loading and unloading dangerous goods must be trained on all the risks deriving from these substances and on all actions that must be taken in case of emergency situations.

Road and rail transport:

ADR/RID Class: 5.2 UN: 3105

Label: 5.2

Proper Shipping Name: 3105 ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE)



Carriage by sea (shipping):

IMO Class: 5.2 UN: 3105

Label: 5.2

EMS: F-J, S-R

Marine Pollutant: NO

Proper Shipping Name: 3105 ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE)



Transport by air:

IATA: 5.2 UN: 3105
Label: 5.2
Proper Shipping Name: 3105 ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE)

**15. Regulatory information.**

- R 7** MAY CAUSE FIRE.
R 22 HARMFUL IF SWALLOWED.
R 34 CAUSES BURNS.
- S 3/14** KEEP IN A COOL PLACE AWAY FROM ACIDS, REDUCING AGENTS AND POLYMERIZATION AGENTS.
S 7 KEEP CONTAINER TIGHTLY CLOSED.
S 26 IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
S 36/37/39 WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.
S 45 IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
S 50 DO NOT MIX WITH PEROXIDES - POLIMERIZATION OR REDUCING AGENTS.

Contains: HYDROGEN PEROXIDE SOLUTION
METHYLETHYLKETONE PEROXIDE

Danger labelling under directives 67/548/EEC and 1999/45/EC and following amendments and adjustments.

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

16. Other information.

Text of (R) phrases quoted in section 3 of the sheet.

- R 2** RISK OF EXPLOSION BY SHOCK, FRICTION, FIRE OR OTHER SOURCES OF IGNITION.
R 5 HEATING MAY CAUSE AN EXPLOSION.
R 7 MAY CAUSE FIRE.
R 8 CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.
R 11 HIGHLY FLAMMABLE.
R 20/22 HARMFUL BY INHALATION AND IF SWALLOWED.
R 22 HARMFUL IF SWALLOWED.
R 34 CAUSES BURNS.
R 35 CAUSES SEVERE BURNS.
R 36 IRRITATING TO EYES.
R 37 IRRITATING TO RESPIRATORY SYSTEM.
R 66 REPEATED EXPOSURE MAY CAUSE SKIN DRYNESS OR CRACKING.
R 67 VAPOURS MAY CAUSE DROWSINESS AND DIZZINESS.

GENERAL BIBLIOGRAPHY

1. Directive 1999/45/EC and following amendments;
2. Directive 67/548/EEC and following amendments and adjustments (technical adjustment XXIX);
3. Regulation (EC) 1272/2008 (CLP) of the European Parliament;
4. Regulation (EC) 1907/2006 (REACH) of the European Parliament;
5. The Merck Index. - 10th Edition;
6. Handling Chemical Safety;
7. Niosh - Registry of Toxic Effects of Chemical Substances;
8. INRS - Fiche Toxicologique (toxicological sheet);
9. Patty - Industrial Hygiene and Toxicology;
10. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition.



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The above mentioned data and information are based on our present knowledge referring to the product itself at the date of publishing. However, some information is still under revision, is for information only, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. The list of legislative, regulatory and administrative texts shall not be considered exhaustive. The user has to refer to official texts for the product use, storage and handling for which he is the only responsible. Furthermore, the user has to give to people working with the product (use, storage, container cleaning) all the necessary information for work safety, health and environment protection, providing them with a copy of this safety data sheet. OXIDO S.r.l. does not take any responsibility for possible damages following the use of the product itself.

Changes to previous review.

The following sections were modified:

07 / 09